Antioxidant, antityrosinase, anticholinesterase, and nitric oxide inhibition activities of three Malaysian Macaranga species.

ABSTRACT

The methanol extracts of three Macaranga species (M. denticulata, M. pruinosa, and M. gigantea) were screened to evaluate their total phenolic contents and activities as cholinesterase inhibitors, nitric oxide (NO) production inhibitors, tyrosinase inhibitors, and antioxidants. The bark of M. denticulata showed the highest total phenolic content (2682 mg gallic acid equivalent (GAE)/100 g) and free radical scavenging activity (IC50 = 0.063 mg/mL). All of the samples inhibited linoleic acid peroxidation by greater than 80%, with the leaves of M. gigantea exhibiting the highest inhibition of 92.21%. Most of the samples exhibited significant antioxidant potential. The bark of M. denticulata and the leaves of both M. pruinosa and M. gigantea exhibited greater than 50% tyrosinase inhibition, with the bark of M. denticulata having the highest percentage of inhibition (68.7%). The bark and leaves of M. denticulata exhibited greater than 50% inhibition (73.82% and 54.50%, resp.) of the acetylcholinesterase enzyme (AChE), while none of the samples showed any significant inhibition of butyrylcholinesterase (BChE). Only the bark of M. denticulata and M. gigantea displayed greater than 50% inhibition of nitric oxide production in cells (81.79% and 56.51%, resp.). These bioactivities indicate that some Macaranga spp. have therapeutic potential in medicinal research.

Keyword: Macaranga; Methanol extracts; Bioactivities.